

A new living scallop (Bivalvia: Pectinidae) from the southwestern Pacific

Henk H. Dijkstra ⁽¹⁾ and Paul C. Southgate ⁽²⁾

⁽¹⁾ Zoological Museum, University of Amsterdam,
P.O. Box 94766, 1090 GT Amsterdam, The Netherlands
(E-mail: h.h.dijkstra@wxs.nl).

⁽²⁾ School of Marine Biology & Aquaculture,
James Cook University, Townsville, Queensland 4811, Australia
(E-mail: paul.southgate@jcu.edu.au).

Abstract

Palliolum minutulum n. sp. is described from New Caledonia, northern Queensland (Australia), the Solomon Islands, Fiji and Kiribati. This is the first living *Palliolum* known from the Indo-Pacific.

Key words: Mollusca: Bivalvia: Pectinidae, *Palliolum minutulum* n. sp., southwestern Pacific.

Introduction

During the *Montrouzier* Expedition to the Touho and Koumac areas of New Caledonia from August 23rd to 5 November 5th 1993 (Bouchet, 1994) a new small pallioline pectinid was collected alive, mainly by algae washings. Additional material from northern Queensland was collected alive amongst algae attached to submerged nets at a depth of 6 m.

The type material is housed at the Muséum national d'Histoire naturelle, Paris (MNHN). Other studied material is kept in the AMS, HD, MNHN, NMNZ, and PS.

Abbreviations

AMS, Australian Museum, Sydney
HD, H.H. Dijkstra collection, Sneek
PS, P.C. Southgate collection, Townsville
MNHN, Muséum national d'Histoire naturelle, Paris
NMNZ, Museum of New Zealand Te Papa Tongarewa, Wellington
db, articulated valves
lv, left valve
rv, right valve

Systematics

Superfamily PECTINOIDEA Wilkes, 1810
Family PECTINIDAE Wilkes, 1810
Subfamily Pectininae Wilkes, 1810
Tribe Palliolini Korbkov in Eberzin, 1960
Genus *Palliolum* Monterosato, 1884

Palliolium Monterosato, 1884: 5 [Proposed as a section of *Pecten*].

Type species (by subsequent designation [Crosse, 1885]): *Pecten incomparabilis* Monterosato, 1828; living, Mediterranean Sea.

Diagnosis: Palliolini with prominent antimarginal microsculpture, antimarginal macrosculpture nearly absent, no shagreen microsculpture or commarginal macrosculpture, foliated calcite (uniformly oriented laths) outside of pallial line, byssal notch and sinus shallow throughout ontogeny, a weak ctenolium with closely spaced teeth, small auricular crura.

Distribution: Eocene–Recent (Hertlein, 1969: N354). Boreal Atlantic (Waller, 1991: 35) and southwestern Pacific; shallow to deep water.

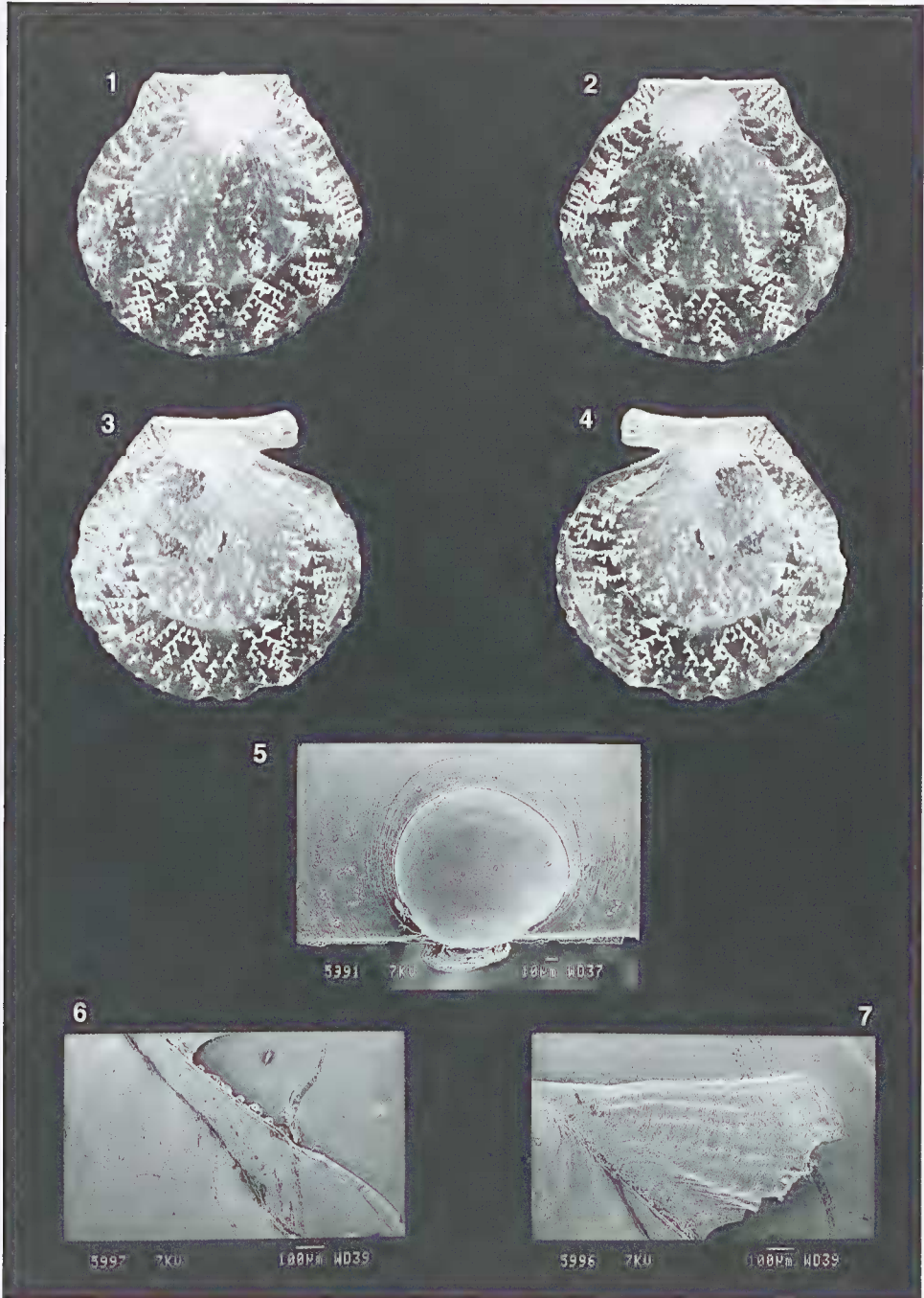
Discussion: So far the present species is the only living *Palliolium* from the Indo-Pacific region. Representative genera of Palliolini, mainly fossil, are enumerated by Beu (1995: 19) and Beu & Darragh (in prep.) from New Zealand and southern Australia.

For phylogeny and stratigraphy see Waller (1991: 35; 1993: 198), Waller & Marinovich (1992: 219), Beu (1995: 19) and Beu & Darragh (in prep.). It differs from *Delectopecten* by a more depressed and less circular shell (*Delectopecten* is more convex and circular of shape), by absence of scales on intersections on left valve (generally present in *Delectopecten*), by a declined hinge line of the right valve (hinge line straight in *Delectopecten*), and a less demarcating byssal fasciole with anterior auricle (strongly demarcating in *Delectopecten*), and a more colourfull shell (*Delectopecten* only whitish). *Delectopecten* is also living in deeper water (bathyal to abyssal depths), *Palliolium* littorally to sublittorally.

Palliolium minutulum n. sp.

(Figs 1-7)

Description: Shell small, orbicular, equiconvex, equilateral, translucent, up to ca. 9 mm high, auricles nearly equal in size, umbonal angle about 90°. Prodissoconch ca. 110 µm in height. Left valve smooth, glossy, with minuscule antimarginal scratches and commarginal lirae near anterior margins of auricle and disc. Microscopic sculpture lacking near posterior and ventral margins. Anterior and posterior auricles gradually transitionally developed into disc without demarcating disc flanks. Hinge line nearly straight, antero-dorsal margin slightly raised. Auricular crura without dorsal and intermediate teeth. Resilifer wide triangular. Right valve with similar microsculpture to that of left valve. Anterior auricle prominent, somewhat curved, with four irregularly arranged radial riblets bearing fine gemmae where they are crossed by the fine commarginal lirae. Byssal fasciole rather broad; byssal notch weakly indented; ctenolium well developed on suture, functional segment with 10 small teeth (active ctenolium). Exterior translucent cream, with white tent-shaped maculations; soft parts dark brown.



Figures:

Figures 1-7. *Palliolum minutulum* n. sp. 1-4. Holotype (MNHN), 6.8 x 6.6 mm (db). 1. Left valve, exterior. 2. Left valve, interior. 3. Right valve, exterior. 4. Right valve, interior. 5-7. Paratypes (MNHN). 5. Left valve, prodissoconch. 6. Right valve, exterior, active tenolium. 7. Right valve, exterior, anterior auricle.

Dimensions of the holotype:

Height 6.8 mm, Length 6.6 mm, Depth (diameter) 1.0 mm.

Type material:

Holotype (db) MNHN and 6 paratypes (db) (MNHN, 5 db; HD 6691, 1 db).

Type locality:

New Caledonia, coral reef lagoon off Koumac, between mainland and Infernet reef, 20°34.4'S, 164°13.0'E, 12-14 m, bottom of flat slabs with gorgonians and ooze, live, *Montrouzier* stn 1299, Oct. 1993.

Other material examined:

New Caledonia. MNHN, 3 lv, 2 rv, HD 6692 (1 lv, 1 rv), NW New Caledonia, 20°34'S, 164°16'E, 0-2 m, dead, *Montrouzier* stn 1277, Oct. 1993; MNHN, 2 lv, NW New Caledonia, 20°34.5'S, 164°15.5'E, 3-7 m, dead, *Montrouzier* stn 1297, Oct. 1993; MNHN, 1 lv, NW New Caledonia, 20°35.8'S, 164°12.7'E, 9-10 m, dead, *Montrouzier* stn 1302, Oct. 1993; MNHN, 1 rv, NW New Caledonia, 20°40'S, 164°11.2'E, 12 m, dead, *Montrouzier* stn 1316, Oct. 1993.

Australia. AMS C.165165, 2 rv, Queensland, Lizard Island, Granite Bluff, in 23 m, sandy mud bottom, many forams, some green mixed algae & *Caulerpa* spp., leg. W.F. Ponder, 7 Dec. 1974; AMS C.165166, 1 rv, Queensland, Lizard Island, off East Face, ca. 20 m, foraminiferous, leg. W.F. Ponder, P.H. Colman, I. Loch, 11 Dec. 1974; AMS C.165167, 1 rv, Queensland, Endeavour Reef, 14°57'S, 145°35'E, 8-10 m, rubble wash on outer reef slope, leg. I. Loch, 9 Dec. 1984; HD 6733, 11 db, 7 lv, N Queensland, Pioneer Bay, Orpheus Island, 18°35'S, 146°29'E, from submerged nets, live, 6 m, leg. P. Southgate.

Solomon Islands. AMS C.165168, 2 lv, 2 rv, W Malaita Island, Aoki Harbour, on sheltered side of reef on slopes, 3-7.5 m, coral & rubble bottom, brown algae washings, leg. P.H. Colman, 18 Aug. 1973; NMNZ MF.30460, 8 lv, 6 rv, Vangunu Island, Marovo Lagoon, between Telina Island and Mbareki Peninsula, amongst shell grit & rubble, 9 m, 6 Oct. 1965; NMNZ MF.59756 and NMNZ MF.59756, 4 lv, 4 rv, Vangunu Island, Marovo Lagoon, off Telina Island, amongst shell grit & rubble, 11 m, 26 Oct. 1965; PS P.1314, 4 db, Nusa Tupe Island, Gizo, attached to submerged nets, live, 6-10 m, leg. K. Friedman.

Fiji. PS P.1315, 1 db, off Savusavu on the island of Vanua Levu, 16°34'S, 179°15'E, attached to submerged nets, live, 8-10 m, leg. P. Southgate.

Kiribati. PS P.1332, 7 db, lagoon of Abaiang atoll, off Taburao, 0°59'N, 172°59'E, attached to submerged nets, live, 6-8 m, leg. A. Beer.

Distribution: Solomon Islands, northern Queensland (Australia), New Caledonia, Fiji and Kiribati, 0-14 m, living in 6-14 m amongst algae on soft sediments.

Discussion

Palliolium minutulum is closest in outline to *Palliolium incomparabile* (Risso, 1826), known from the Mediterranean Sea and the adjacent area of the eastern Atlantic. Both species are almost circular in shape, fragile, usually transparent and highly

coloured. However, *P. incomparabile* is larger (up to ca. 13 mm high) with prominent antimarginal microsculpture; *P. minutulum* is smaller (up to ca. 10 mm high, usually smaller to 8 mm) with minuscule antimarginal scratches or smooth.

Remarks

The present species is live collected amongst algae in shallow water. The size attained by live specimens held under culture conditions for up to 8 months was 6-8 mm in height. The largest specimen examined, from Gizo in the Solomon Islands, was 9.2 mm in height.

Etymology

The species is named after its small dimension (Latin *minutulus*, adj. = very small).

Acknowledgements

We are most grateful to Dr Philippe Bouchet (MNHN) for making the "Montrouzier" pectinids from New Caledonia available for study. Thanks are also due to Dr Winston F. Ponder, Mr Phil H. Colman, Mr Ian Loch (AMS) and Mr Bruce A. Marshall (NMNZ) for allowing us to study additional pectinid material and for relevant information of the present new pectinid. We also appreciate to thank Dr Rudo von Cosel and Mr Pierre Lozouet (MNHN) for preparing photographs and SEM-micrographs.

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